The Quaker Oats Company, John Stuart Research Laboratories, 617 West Main Street, Barrington, Illinois 60010 (312) 381-1980

July 26, 1984

Illinois EPA
2200 Churchill Road
Springfield, IL 62706

Attention Mr. Jerry Siekerka

Gentlemen:

Ref: Renewal Permit for Kennels Wastewater Treatment Facility

As per your telephone request of July 13, 1984, we are enclosing a plot plan of our Kennel property showing the lagoons, irrigation system, and spray field in relation to our property lines. Other items you were concerned about, such as pumping rates and spray pattern, are denoted on the drawing. Dimensions of the larger lagoon are 243' by 400', the smaller is 150' by 200' with an average water depth of 5'.

Bottled chlorine gas; from 150 pound cylinders purchased from Alexander Chemical Company, Chicago, Illinois, is injected into the discharge piping coming from the larger lagoon via a Wallace and Tiernan chlorinator at the rate of approximately 1.25 lb/hour, giving about 4 to 6 ppm. The mixing of the effluent and chlorine is then completed in a 60 feet long by 40" diameter baffled contact tank just prior to being pumped to the spray system.

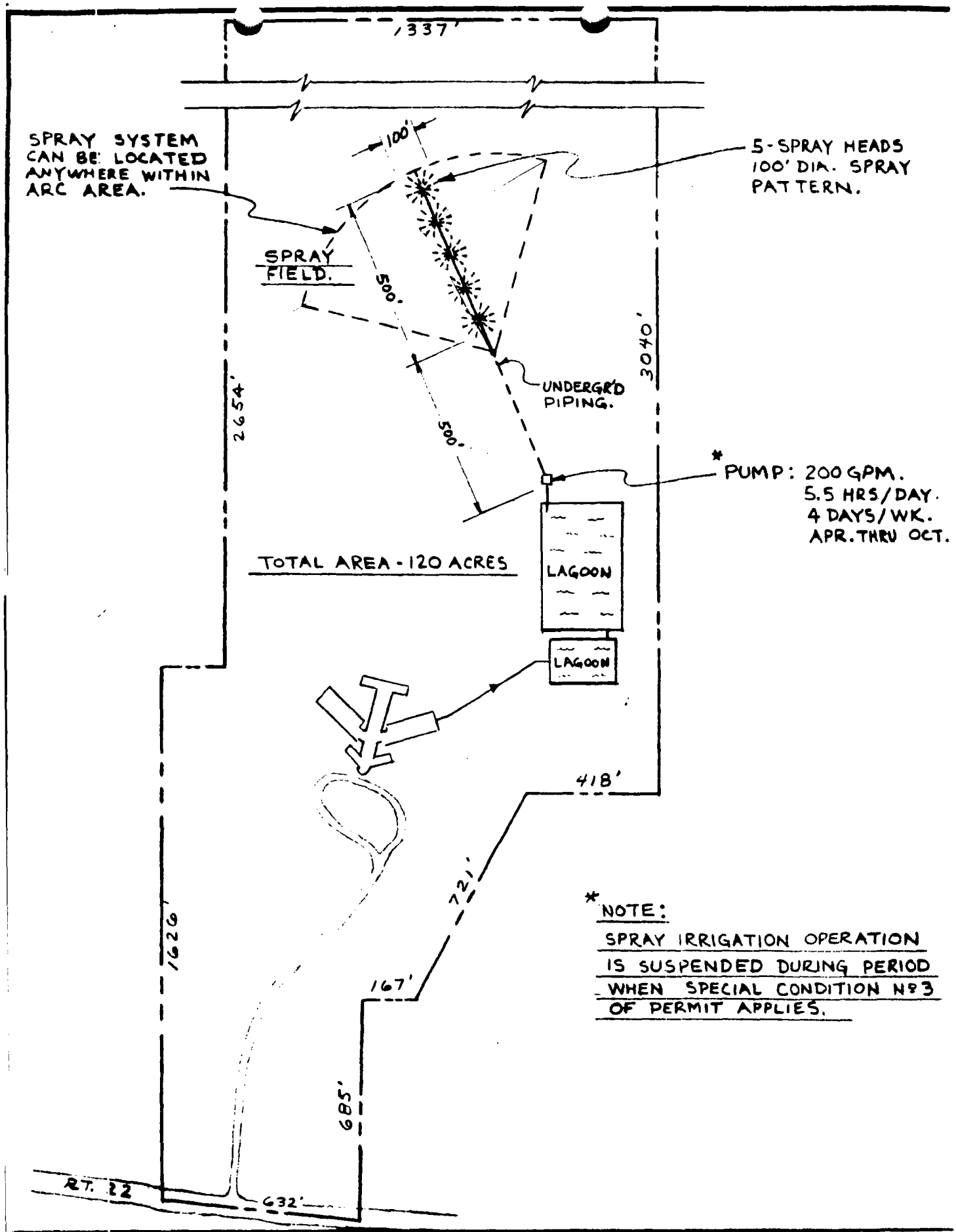
Settlement sludge is stored in the lagoons for approximately 10 years, at which time a dredging contractor will be employed to remove and truck away the sludge for proper final disposal.

I believe the above should suffice for your needs, call if you have further questions.

Sincerely,

Frank T. Trestik
Assoc. Plant Engineer
Plant Engineering

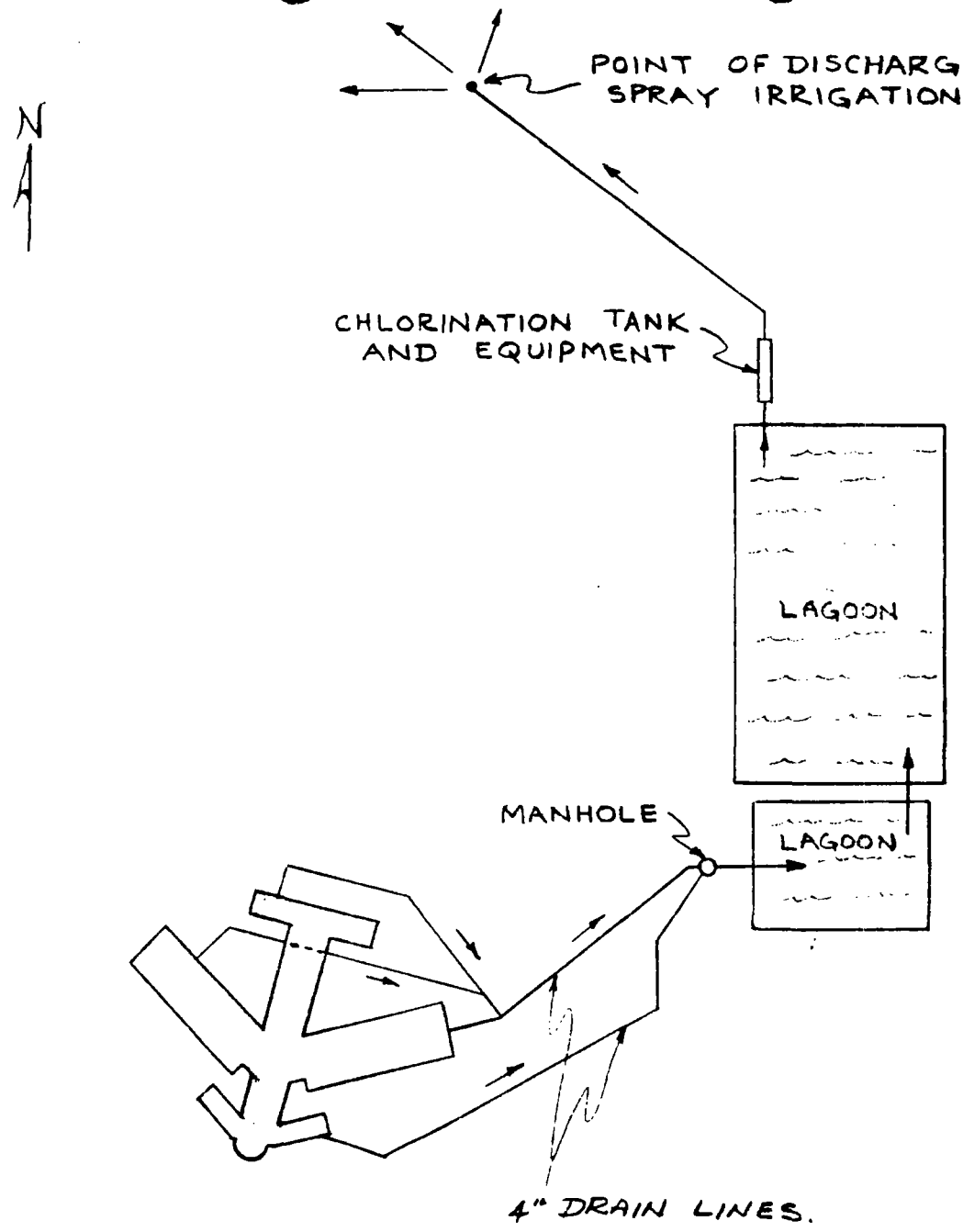
ns
c P. Valentino
L. Jurik
Enclosures (2)



* NOTE:
SPRAY IRRIGATION OPERATION IS SUSPENDED DURING PERIOD WHEN SPECIAL CONDITION Nº 3 OF PERMIT APPLIES.

FORM NO. 4305P

FILE NO.	REVISIONS			THE QUAKER OATS COMPANY, CHICAGO, ILL.		SHEET NO.
—	NO.	DATE	BY	PLANT BARRINGTON	KENNELS - PLOT PLAN WASTEWATER TREATMENT FACILITY.	—
JOB NO.				DR. FTT		
—				CH'K. —		
				SCALE 1" = 400' Approx.		
				DATE 7-20-84		



KENNEL BUILDINGS

REVISIONS		
NO.	DATE	BY

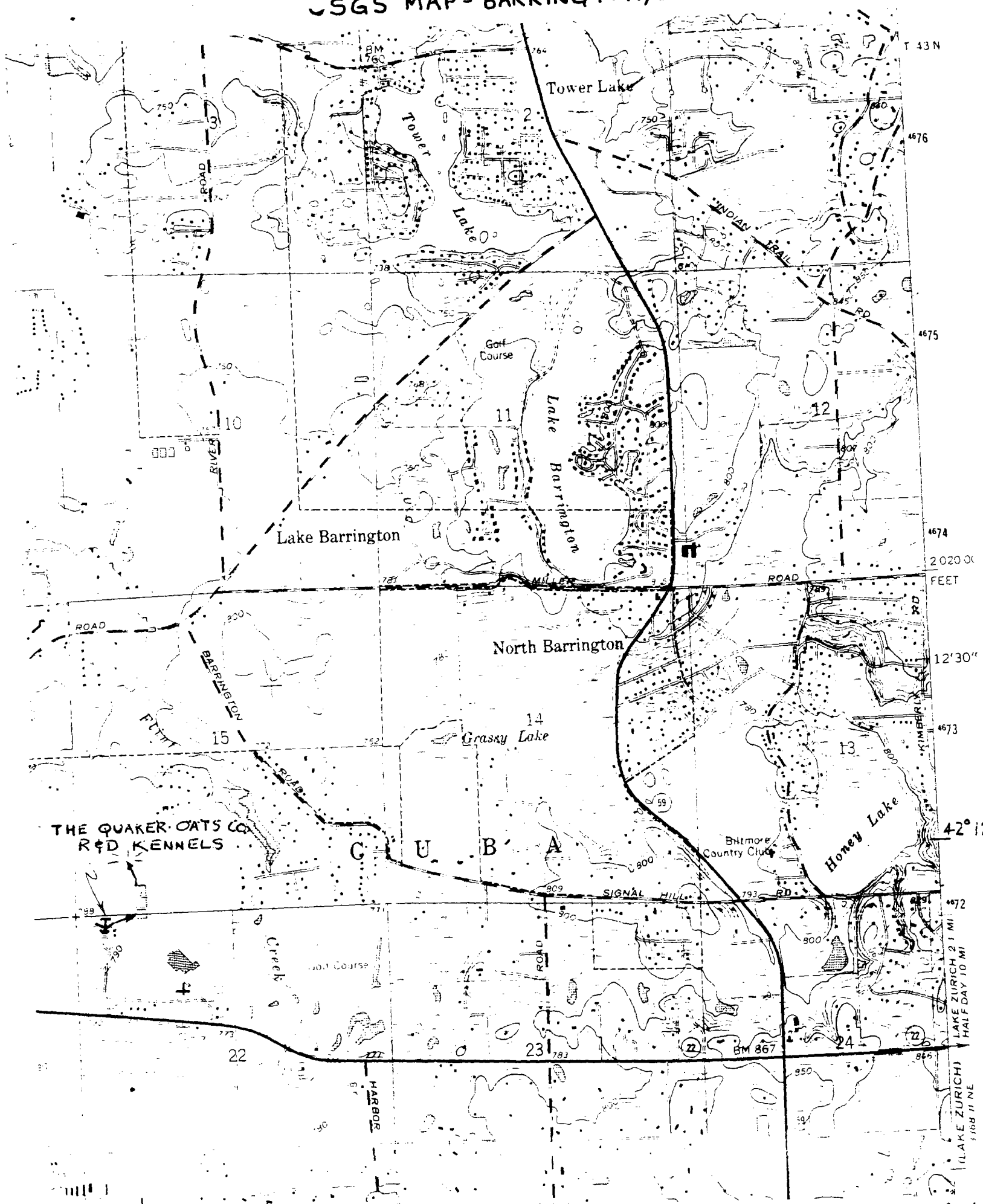
FLOW DIAGRAM
KENNELS WASTEWATER TREATMENT AND SPRAY IRRIGATION.

THE QUAKER OATS COMPANY
BARRINGTON, ILL.
[redacted]

PLANT

SCALE	DATE	DRAWN	CH'K.	JOB NO.	FILE NO.	SHEET NO.
–	5-24-84	ET	–	–	–	–

USGS MAP - BARRINGTON, IL.



SCALE 1:24000.

NW/4 BARRINGTON 15' QUADRANGLE

THE QUAKER OATS COMPANY (KENNELS)

Wastewater Treatment and Spray

Irrigation (Lake County)

Test Results for
Special Condition 4 of
Permit No. 1979-FB-5503

Note: Existing potable water well used to obtain samples.

Nitrogen, Nitrate	<0.01	mg/L
Nitrogen, Ammonia	0.20	mg/L
Chloride	4.0	mg/L
Sulfate	31.0	mg/L
Solids, Tot. Diss.	357.0	mg/L
Phosphate, Tot.	0.09	mg/L
Coliform, Fecal (MF)	0.0	/100 mL
pH	7.23	Units

ns

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

0891-84

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Environmental Protection Agency
WPC — Permit Log In

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF WATER POLLUTION CONTROL
PERMIT SECTION
Springfield, Illinois 62706

SCHEDULE N WASTE CHARACTERISTICS

1 Name of Project The Quaker Oats Kennels Wastewater Treatment Facility

2. FLOW DATA

	EXISTING	PROPOSED-DESIGN
2.1 Average Flow (gpd)	12,500	
2.2 Maximum Daily Flow (gpd)	16,000	

2.3 TEMPERATURE

Time of year	Ave. Intake Temp. F	Avg. Effluent Temp. F	Max. Intake Temp. F	Max. Effluent Temp. F	Max. Temp. Outside Mixing Zone F
SUMMER					
WINTER					

2.4 Minimum 7-day, 10-year flow: _____ cfs _____ MGD.

2.5 Dilution Ratio _____ ; _____

2.6 Stream flow rate at time of sampling * _____ cfs _____ MGD. *No discharge to waters of state.

3. CHEMICAL CONSTITUENT Existing Permitted Conditions ___ ; Existing conditions X ; Proposed Permitted Conditions _____.

Type of sample: X grab (time of collection ___); ___ composite (Number of samples per day _____)

(see instructions for analyses required)

- Current Conditions -

Constituent	RAW WASTE (mg/l)	TREATED EFFLUENT Avg. (mg/l)	Max.	UPSTREAM (mg/l)	DOWNSTREAM SAMPLES (mg/l)
Ammonia Nitrogen (asN)	109	6.89			
Arsenic (total)					
Barium					
Boron					
BOD_5	900	33.			
Cadmium					
Carbon Chloroform Extract					
Chloride	--	242			
Chromium (total hexavalent)					
Chromium (total tribalent)					
Copper					
Cyanide (total)					
Cyanide (readily released @150°F & pH 4.5)					
Dissolved Oxygen					
Fecal Coliform	TNTC	160 m/L			

	RAW WASTE (mg/l)	TREATED EFFLUENT Avg. (mg/l) Max.	UPSTREAM (mg/l)	DOWNSTREAM SAMPLES (mg/l)
Fluoride				
Hardness (as $CaCO_3$)				
Iron (total)				
Lead				
Manganese				
MBAS				
Mercury				
Nickel				
Nitrates (asN)	<0.05	<0.05		
Oil & Grease (hexane solubles or equivalents)				
Organic Nitrogen (as N)	177	12.0		
pH	6.48	7.42		
Phenols				
Phosphorous (as P)	2.88	2.84		
Radioactivity				
Selenium				
Silver				
Sulfate				
Suspended Solids	315	10		
Total Dissolved Solids	965	743		
Zinc				
Others TOC	395	17.2		
COD	1170	64.		

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DIVISION OF WATER POLLUTION CONTROL
PERMIT SECTION
Springfield, Illinois 62706

SCHEDULE J INDUSTRIAL TREATMENT WORKS CONSTRUCTION OR PRETREATMENT WORKS

1. NAME AND LOCATION:

1.1 Name of project Quaker Oats Kennels Wastewater Treatment Facility

1.2 Plant Location

1.2.1 S.W. 1/4 (Quarter Section) 15 (Section) 43 (Township) 9 (Range) E of 3rd (P.M.)

1.2.2 Latitude 42 ° 12 ' 0 "North
Longitude 88 ° 10 ' 35 "West

1.2.3 Name of USGS Quadrangle Map (7.5 or 15 Minutes) NW/4 Barrington 15' Quadrangle

2. NARRATIVE DESCRIPTION AND SCHEMATIC WASTE FLOW DIAGRAM: (see instructions)

Wastewater Treatment Facility Serving the Quaker Oats Research Kennels, consisting of 99,693 cu. ft. lagoon, a 400,000 cu. ft. lagoon, chlorination equipment, and spray irrigation system.

2.1 PRINCIPAL PRODUCTS:

2.2 PRINCIPAL RAW MATERIALS: Dog and cat excreta generated in Research Kennels.

3. DESCRIPTION OF TREATMENT FACILITIES:

3.1 Submit a flow diagram through all treatment units showing size, volumes, detention times, organic loadings, surface settling rate, weir overflow rate, and other pertinent design data. Include hydraulic profiles and description of monitoring systems.

3.2 Waste Treatment Works is: Batch ____, Continuous X ; No. of Batches/day ____, No. of Shifts/day ____

3.3 Submit plans and specifications for proposed construction.

3.4 Discharge is: Existing X ; Will begin on ____.

4 *DIRECT DISCHARGE IS TO: Receiving Stream N/A Municipal Sanitary Sewer N/A, Municipal storm or municipal combined sewer N/A. If receiving stream or storm sewer indicated complete the following:

Name of receiving stream N/A ; tributary to N/A ;

tributary to ____ ; tributary to ____.

5. Is the treatment works subject to flooding? If so, what is the maximum flood elevation of record (in reference to the treatment works datum) and what provisions have been made to eliminate the flooding hazard? No

6. APPROXIMATE TIVE SCHEDULE: Estimated construction schedule:

Start of Construction N/A ; Date of Completion ____

Operation Schedule ____ ; Date Operation Begins ____

100% design load to be reached by year ____.

* The system is not new but has been in operation since 1973 under Permits #1973-FA-424-OP and 1979-FB-5503

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IL 532-0018
WPC 158

090-001

7. DESIGN LOADINGS

7.1 Design population equivalent (one population equivalent is 100 gallons of wastewater per day, containing 0.17 pounds of BOD_5 and 0.20 pounds of suspended solids;

BOD_____; Suspended Solids_____; Flow_____.

7.2 Design Average Flow Rate 12,500 MGD.

7.3 Design Maximum Flow Rate_____ MGD.

7.4 Design Minimum Flow Rate_____ MGD.

7.5 Minimum 7-day, 10-year low flow_____ cfs_____ MGD.

Minimum 7-day, 10-year flow obtained from_____.

7.6 Dilution Ratio_____;_____.

8. FLOW TO TREATMENT WORKS (if existing):

8.1 Flow (last 12 months)

8.1.1 Average Flow .012 MGD

8.1.2 Maximum Flow .016 MGD

8.2 Equipment used in determing above flows Water Meter at Well.

9. Has a preliminary engineering report for this project been submitted to this Agency for Approval?

YES___ NO___. If so, when was it submitted and approved. Date Submitted_____

Certification#_____

N/A Dated_____

10. List Permits previously issued for the facility: 1973-FA-424-OP and 1979-FB-5503

11. Describe provisions for operation during contingencies such as power failures, flooding, peak loads, equipment failure, maintenances shut-downs and other emergencies.

No provision required — lagoons have adequate storage capacity to deal with short term emergencies.

12. Complete and submit Schedule G if sludge disposal will be required by this facility.

13. WASTE CHARACTERISTICS: Schedule N must be submitted.

14. TREATMENT WORKS OPERATOR CERTIFICATION: List names and certification numbers of certified operators:

Ken G. Srch, Class 4 Operator, qualified to operate Group 4 wastewater treatment works.

0891-84

FOR IEPA USE: 1/4/74
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JUN 26 1984

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DIVISION OF WATER POLLUTION
PERMIT SECTION
Springfield, Illinois 62706

SCHEDULE H SPRAY IRRIGATION

NAME AND LOCATION: Name of project *The Quaker Oats Kennels Wastewater Treatment Facility

2. Submit design report as specified in Addendum Number 2 of the 1971 Edition of "Recommended Standards For Sewage Works: (Ten States Standards").

3. SOURCES AND TYPES OF WASTES:

3.1 Describe Sources of Wastewater: Discharge from the Quaker Oats Kennels

3.2 Treatment Prior To Spray Irrigation: Submit the appropriate Schedules D, E and/or J.

3.3 Submit Schedule N.

3.4 Land Area One (1) acres, Maximum slopes 5% %.

3.5 Design Application Rate 5 in/hr inches/unit time.

3.6 Total Flow 12,500 GPD. (No discharge to waters of state.)

4. BASIS OF DESIGN AND OPERATION: Submit a narrative description of this disposal operation.

5. Provide IEPA Permit Numbers for all solid, waste disposal or wastewater treatment works located at the site of this facility. #1979-FB-5503

6. SAFETY PRECAUTIONS: Describe supplementary operating practices and design features to prevent ground and/or surface water pollution.

7. SPRAY IRRIGATION (TREATMENT WORKS) OPERATOR: List names and certification numbers of operators,
Ken G. Srch, Class 4 Operator, qualified to operate Group 4 wastewater treatment works.

* The system is not new but has been in operation since 1973 under Permits #1973-FA-424-90 and 1979-FB-5503.

100% Recycled Paper

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IL 532-0034

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0891-84

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Environmental Protection Agency
Division of Water Pollution Control
Permit Section-Springfield
State of Illinois

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF WATER POLLUTION CONTROL
PERMIT SECTION
Springfield, Illinois 62706

APPLICATION FOR PERMIT OR CONSTRUCTION APPROVAL

WPC-PS-1

1. **NAME AND LOCATION:**

Name of project: Quaker Oats Kennels Wastewater Treatment Facility

Municipality or Township: Cuba Twp. County: Lake

2. **BRIEF DESCRIPTION OF PROJECT:** System consists of two lagoons, chlorination facility and spray irrigation system.

3. **DOCUMENTS BEING SUBMITTED:** If the project involves any of the items listed below, submit the corresponding schedule, and check the appropriate spaces.

PROJECT

Private Sewer Connection	A ____	Spray Irrigation	H X
Public Sewer Extension	B ____	Septic Tanks	I ____
Sewer Extension Construct Only	C ____	Industrial Treatment or Pretreatment	J X
Sewage Treatment Works	D ____		
Excess Flow Treatment	E ____	Cyanide Acceptance	L ____
Lift Station/Force Main	F ____	Updating Cyanide Acceptance Form	M ____
Sludge Disposal	G ____	Waste Characteristics	N X

LAND TRUST: Is the project identified in item number 1 herein, for which a permit is requested, to be constructed on land which is the subject of a trust? ☐ Yes ☐ No N/A
If yes, item number 6.1.1 herein must be signed by a beneficiary, trustee or trust officer, and a trust disclosure must be submitted (see instructions, item 3).

Plans: Title N/A Number of Pages: ____

Specifications: Title N/A Number of Books/Pages: ____

Other Documents (Please Specify) ____

4. **THIS IS AN APPLICATION FOR (CHECK):**

____ A. Joint Construction And Operating Permit
____ B. Authorization To Construct (See Instructions) NPDES Permit No. IL00____ Issue Date ____
__X__ C. Construct Only Permit (Does Not Include Operations)
__X__ D. Operate Only Permit (Does Not Include Construction) Existing Permit No. 1979-FB-5503

5. **CERTIFICATIONS AND APPROVAL:**

5.1 **Certificate by Design Engineer**
I hereby certify that I am familiar with the information contained in this application, including the attached schedules indicated above, and that to the best of my knowledge and belief such information is true, complete and accurate. The plans and specifications (specifications other than Standard Specifications or local specifications on file with this Agency) as described above were prepared by me or under my direction.

ENGINEER Paul E. Valentino (NAME) 62-26555 (REGISTRATION NUMBER) ____ (SEAL)

FIRM: The Quaker Oats Co. - John Stuart Research Laboratories

ADDRESS 617 West Main Street
Barrington, IL 60010 PHONE NUMBER (312) 381-1980

SIGNATURE Paul E. Valentino

6. **CERTIFICATIONS AND APPROVALS FOR PERMITS:**

6.1 **Certificate by Applicant(s)**
I/We hereby certify that I/we have read and thoroughly understand the conditions and requirements of this Application, and am/are authorized to sign this application in accordance with the Rules and Regulations of the Illinois Pollution Control Board.
I/We hereby agree to conform with the Standard Conditions and with any other Special Conditions made part of this Permit.

6.1.1 NAME OF APPLICANT FOR PERMIT OR AUTHORIZATION TO CONSTRUCT N/A

STREET CITY STATE ZIP CODE

SIGNATURE ____

TITLE ____ ORGANIZATION ____

6.1.2 NAME OF APPLICANT FOR PERMIT TO OWN AND OPERATE The Quaker Oats Company

617 West Main Street | Barrington | IL | 60010
STREET | CITY | STATE | ZIP CODE

SIGNATURE Paul E. Valentino

TITLE Manager - General Services

6.2 **Attested (Units of Government)**

DATE _____ SIGNATURE _____ TITLE _____
(CITY CLERK, VILLAGE CLERK, SANITARY DISTRICT CLERK, ETC.)

6.3 Applications from non-governmental applicants which are not signed by the owner, must be signed by a principal executive officer of at least the level of vice president, or his duly authorized representative.

6.4 **CERTIFICATE BY INTERMEDIATE SEWER OWNER**

I hereby certify that (Please check one):

N/A 1. The sewers to which this project will be tributary have adequate reserve capacity to transport the wastewater that will be added by this project without causing a violation of the Environmental Protection Act or Subtitle C, Chapter I, or

N/A 2. The Illinois Pollution Control Board, in PCB _____ dated _____, granted a variance from Subtitle C, Chapter I to allow construction and operation of the facilities that are the subject of this application.

Name and location of sewer system to which this project will be tributary:

N/A

SEWER SYSTEM OWNER _____

STREET | CITY | STATE | ZIP CODE

SIGNATURE _____ DATE _____ TITLE _____

6.4.1 **ADDITIONAL CERTIFICATE BY INTERMEDIATE SEWER OWNER**

I hereby certify that (Please check one)

N/A 1. The sewers to which this project will be tributary have adequate reserve capacity to transport the wastewater that will be added by this project without causing a violation of the Environmental Protection Act or Subtitle C, Chapter I, or

N/A 2. The Illinois Pollution Control Board, in PCB _____ dated _____, granted a variance from Subtitle C, Chapter I to allow construction and operation of the facilities that are the subject of this application.

Name and location of sewer system to which this project will be tributary:

N/A

SEWER SYSTEM OWNER _____

STREET | CITY | STATE | ZIP CODE

SIGNATURE _____ DATE _____ TITLE _____

6.5 **CERTIFICATE BY WASTE TREATMENT WORKS OWNER**

I hereby certify that (Please check one):

N/A 1. The waste treatment plant to which this project will be tributary has adequate reserve capacity to treat the wastewater that will be added by this project without causing a violation of the Environmental Protection Act or Subtitle C, Chapter I, or

N/A 2. The Illinois Pollution Control Board, in PCB _____ dated _____, granted a variance from Subtitle C, Chapter I to allow construction and operation of the facilities that are the subject of this application.

I also certify that the industrial waste discharges described in the application is capable of being treated by the treatment works, and such waste discharges will be in compliance with all currently applicable local, state or federal pretreatment requirements.

Name and location of waste treatment works to which this project will be tributary:

N/A

TREATMENT WORKS OWNER _____

STREET | CITY | STATE | ZIP CODE

SIGNATURE _____ DATE _____ TITLE _____

JG:6452C
WPC 150

Review Notes (4-1)

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

IL 532-0357
ADM 39
054-002

Subject _____

Data _____

Reviewed by _____ Date _____

Soils — see copy of Lake Co. Soil Survey Map.

194 B — Morley — 2-4% slope — silt loam — permeability — 0-9 inches - 0.63-2.00 in/hr.
9-28 inches - 0.2-0.63
28-60" - 0.2-0.63

232 — Ashkum — silty clay loam
Permeability 0-12" — 0.63-2.00
12-35" — 0.20-0.63

Permit Limits — 1) no runoff from spray operation

2) no ponding

3) application site shall be rotated daily i.e. "site" shall be used for no longer than 1 day and rested for at least 3 days.

4) no application when rain is imminent, when

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

IL 532-0357
ADM 39
054-002

(2)

Subject Quaker Oats Co.
Data Log # 0891 - 84
Reviewed by _____ Date 8/2/84

DATA FROM SUPPLEMENTAL INFO OF JULY 26, 1984.

Land Appl. Area = $\pi(50)^2 \times 5$ = 39,270 ft²
by spray headers = 0.9 acre

Total spray field area available ≅ $\pi(630)^2 \times 1/4$
≅ 311,724.5 ft²
≅ 7.2 acres.

Actual Rate of Application:

200 GPM × 60 × 5.5 Hr/day = 66,000 GPD.

$\frac{200 \text{ GPM} \times 60 \times 12 \text{ in/ft}}{7.48 \times 43560 \times 0.9 \text{ ac.}}$ = 0.49 in/Hr

× 5.5 Hr/day = 2.69 in/day

TOTAL WASTEWATER GENERATED PER YEAR
12,500 gpd × 365 = 4,562,500 gal.

Lagoon storage capacity = 500,000 cu ft × 7.48
= 3,740,000 gal.

# of Days to dispose of wastewater = 4,562,500/66,000 gpd
= 69 days.

# of days available - Apr - Oct 7 × 30 = 210 days

OK both May for percolation rate.

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

REVIEW NOTES ①

IL 532-0357
ADM 39
054-002

Subject Quaker Oats Co.
Data Log # 0891-84
Reviewed by GCS Date 7/13/84

APPLICANT : THE QUAKER OATS Co.
JOHN STUART RESEARCH LABS.
617 W. MAIN ST.
BARRINGTON, ILL. 60010
LAKE COUNTY
PAUL E. VALENTINO (312) 381-1990

NATURE OF PROJECT : RENEWAL OF OPERATING PERMIT 1979-FB-5503.
TREATMENT PLANT FOR ANIMAL (DOG & CAT) WASTE CONSISTING OF TWO LAGOONS IN SERIES, CHLORINATION AND SPRAY IRRIGATION DISPOSAL WITH NO DISCHARGE TO WATERS OF STATE FROM THIS SYSTEM.
FACILITY HAS AN NPDES PERMIT NO. IL0001473 FOR NCCW AND DISCHARGES SANITARY W.W., UTILITY WATER AND BOILER B.D. TO CITY OF BARRINGTON STP.

TECHNICAL REVIEW :

AVG. FLOW - 12,500 gpd. (TO TREATMENT LAGOON)
LAND APPL. AREA — 1 acre spray coverage ; 12½ acre site
DESIGN APPL. RATE - 5 IN/HR

5 IN/HR. x 43560 FT² x 1/12 x 7.48 = 135,762 gal/HR
= 2263 gpm

Data from field report of 10-11-[illegible]9

SPRAY RATE = 200 gpm
DURATION OF SPRAYING - 5 HRS./day

200 gpm x 60 x 5 = 60,000 gpd

200 gpm x 60 = 12,000 g phr.